1993-1994 Expenditures of Great Lakes Salmon and Trout Stamp Revenues

Administrative Report No. 37

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Wisconsin Department of Natural Resources
Bureau of Fisheries Management
Madison, Wisconsin
December 1994

Expenditures

of

Great Lakes

Salmon and Trout

Stamp Revenues 1993-1994

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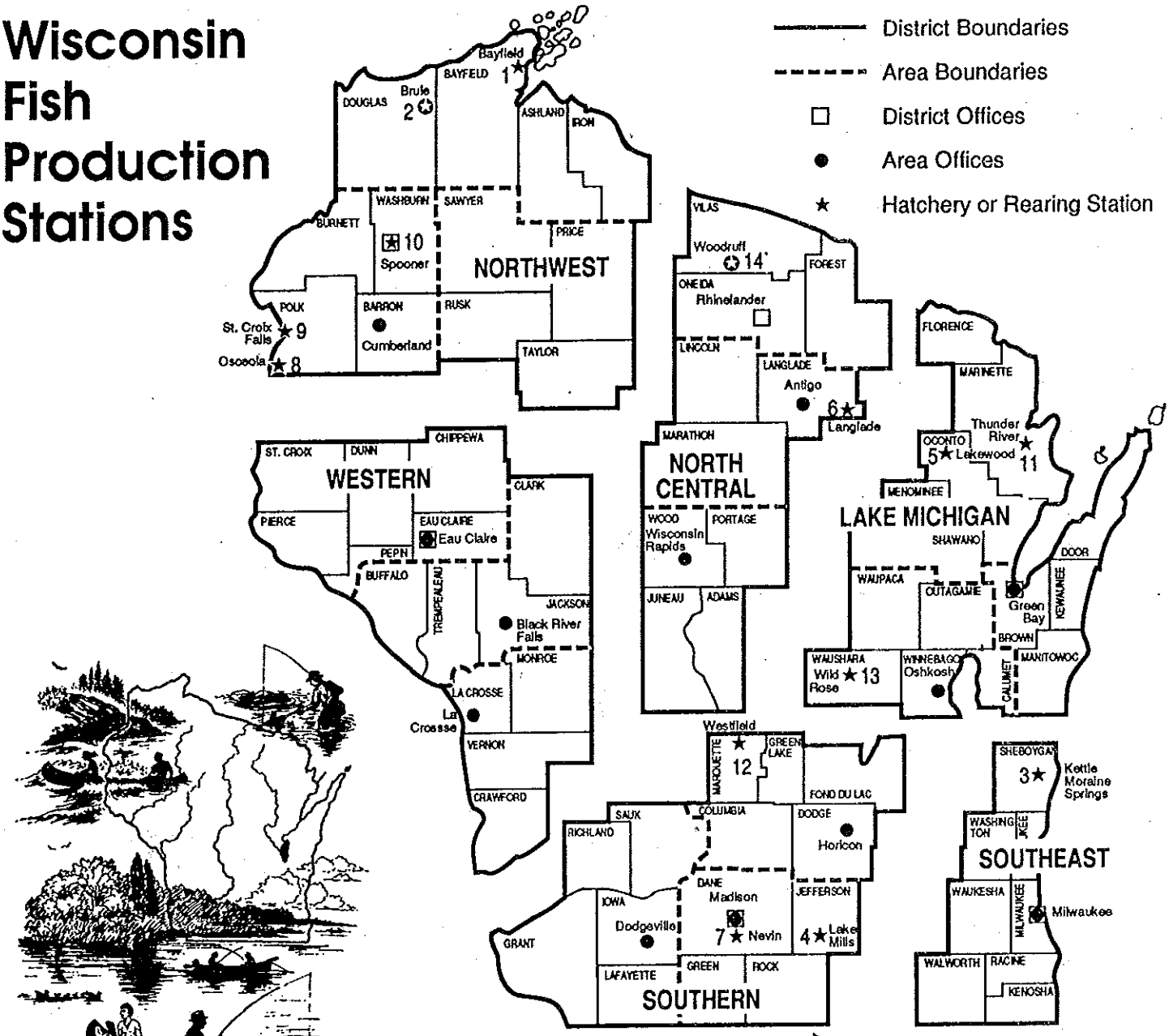
Wisconsin Fish Production Stations



	Facility	Telephone Number	Hatches Eggs	Type of Fish	Live Fish Display	Restrooms	Picnic Area	Seasonal Operation*
1	Bayfield	(715) 779-5430	●	C		●		
2	Brule	(715) 372-4820	●	C		●	▲	
3	Kettle Moraine Springs	(414) 528-8825	●	C		◉		
4	Lake Mills	(414) 648-8012	●	C/W	●	●	●	
5	Lakewood	(715) 276-6066		C		●		
6	Langlade	(715) 882-8757		C		●		
7	Nevin	(608) 275-3246	●	C		●	●	
8	Osceola	(715) 294-2525	●	C				
9	St. Croix Falls	(715) 483-3535	●	C		▲	▲	
10	Spooner	(715) 635-4147	●	W	●	◉		◉
11	Thunder River	(715) 757-3541		C		●		●
12	Westfield	(608) 296-2343	●	C		◉		
13	Wild Rose	(414) 622-3527	◉	C/W	●	◉	●	
14	Woodruff	(715) 356-5211	●	W	◉	◉		●

Key

- ● At hatchery
- ▲ Nearby
- * No fish on premises during winter

Type of Fish

- C Coldwater
- W Cool/warmwater
- C/W Both

Salmon and Trout Stamp Expenditure Background

Since 1982 every angler wishing to fish for salmon or trout on Wisconsin waters of the Great Lakes has been required to purchase a Great Lakes Salmon and Trout Stamp. Wisconsin Statute 29.15(5) directs the Department of Natural Resources (DNR) to "expend the receipts from the sale of Great Lakes Salmon and Trout Stamps to supplement and enhance the existing trout and salmon rearing and stocking program for outlying waters and to administer this section." Receipts from the sale of Great Lakes Salmon and Trout Stamps are placed in a salmon stamp account. A six-year plan encompassing planned expenditures for use of stamp sale revenues in the years 1983-1988 was published in 1983[1]. Three previous reports have been published which summarize actual expenditures of stamp sale revenues. The first[2] covered fiscal 1983 (FY83) and FY84, the second[3] FY 85 and FY86, and the third[4] FY87-FY92. (Fiscal years run from July 1 of one year through June 30 of the next. For example, FY94 is the period July 1, 1993 through June 30, 1994.)

In 1992, the Legislature enacted a two-day fishing license for the Great Lakes. A purchaser of this license does not need to buy a Great Lakes Stamp. By law, half of the revenue from this license must be placed in the Salmon Stamp account adding to the revenue from stamp sales.

For specific information on Great Lakes stocking numbers, two cumulative reports, updated annually can be obtained from Bill Horns, Great Lakes Specialist in Madison: ***Wisconsin's Lake Michigan Salmonid Stocking Program*** and ***Wisconsin's Lake Superior Salmonid Stocking Summary.***

[1] Krueger, C.C. 1983. Expenditure Plan for Great Lakes Salmon and Trout Stamp Revenues, 1983-1988. Administrative Report No. 18. Bureau of Fisheries Management, Department of Natural Resources, Madison, Wisconsin.

[2] Hansen, M.J. 1984. Expenditures for Great Lakes Salmon and Trout Stamp Revenues, 1983-84. Administrative Report No. 22. Bureau of Fisheries Management, Department of Natural Resources, Madison, Wisconsin.

[3] Welch, D. 1987. Expenditures of Great Lakes Salmon and Trout Stamp Revenues, 1985-86. Administrative Report No. 26. Bureau of Fisheries Management, Department of Natural Resources, Madison, Wisconsin.

[4] Horns, W.H., Zilker D.A., and Perkins, L. November 1993. Expenditures of Great Lakes Salmon and Trout Stamp Revenues 1987-1992. Administrative Report No. 36. Bureau of Fisheries Management, Wisconsin Department of Natural Resources, Madison, Wisconsin.

Introduction

This report summarizes the use of all revenue allocated to the salmon stamp account for fiscal years 1993 and 1994, and includes actual costs for each DNR District and its projects. All costs associated with travel, special services, supplies, permanent property, and limited term employee salaries are included. Projects are categorized as either program operations (activities) or developments (facilities). Permanent employee salaries and fringe benefits are charged against separate allotments within each district as employees engage in approved projects. While permanent employee salaries are described in this report for each district, fringe benefits are summarized only in Table 1 on page 4.

The closing cash balance at the end of FY93 was $650,124.00. The cash balance at the end of FY94 was $889,766.00. The balance for FY94 includes encumbrances. Encumbrances are committed expenses planned for FY94 which didn't occur during the fiscal year, but will be expended in the future. Expenditures in FY95 will be summarized in a future report.

It is important to us at Fisheries Management that this information is useful, informative, and answers any questions you may have about the expenditures of Salmon and Trout Stamp funds. To help us better meet this goal we ask that you let us know how we can improve this report. Please direct your suggestions to:

Attn: Bill Horns, Great Lakes Specialist

Wisconsin Department of Natural Resources
Bureau of Fisheries Management
P.O. Box 7921
101 S. Webster St.
Madison, WI 53707
Phone: (608) 266-8782 or
(608) 266-1877

Thank you for your interest and feedback.

Table 1.

Expenditures of Great Lakes Salmon and Trout Stamp revenues for program operations and facility developments in Wisconsin 1993-1994.

	FY 1993	FY 1994
Northwest District		
Operations	39,966	100,039
Developments	0	0
Permanent Salary	31,560	37,087
Total	71,526	137,126
Lake Michigan District		
Operations	165,942	172,875
Developments	45,183	14,102
Permanent Salary	11,784	12,100
Total	222,909	199,077
Southeast District		
Operations	250,820	268,428
Developments	0	16,195
Permanent Salary	33,990	37,176
Total	284,810	321,799
Southern District		
Operations	51,135	58,425
Developments	0	0
Permanent Salary	0	0
Total	51,135	58,425
North Central District		
Operations	0	0
Developments	0	0
Permanent Salary	0	6,699
Total	0	6,699
Central Office		
Operations	12,906	12,497
Developments	0	0
Permanent Salary	0	0
Total	12,906	12,497
Grant Transfers	-24,333[5]	0
Fringe Benefits	54,550	61,741
Miscellaneous	789	3,884
Grand Total	674,292	801,248

[5] A matching fund reimbursement to the Salmon Stamp account from another funding source supporting previous facilities developments at the C.D. "Buzz" Besadny Anadromous Fisheries Facility at Kewaunee.

Table 2.
Annual Great Lakes Salmon and Trout Stamp balances, Fiscal years 1993 and 1994.

	FY 1993	FY 1994
Beginning Cash Balance	85,313	650,124
+ Revenues	1,239,103	1,040,890
= Total Funds Available	1,324,416	1,691,014
- Total Expenditures	674,292	801,248
= End of Year Balance *	650,124	889,766

* The end of the year balance includes encumbrances. This means some of the balance is already committed to projects planned (continuing) for FY95. For example, in FY94, of the $889,766.00 balance, $215,732.00 is already committed, leaving $674,034.00 actually available for new projects. The $215,732.00 will show up in the next Salmon Stamp Expenditure Report as actual expenditures in FY95.

NORTHWEST DISTRICT

Operations — Field Activities

Rehabilitate Lake Trout Population in Lake Superior

(Expenditure: $26,373.00 in FY94)

Contact: Stephen Schram, Lake Superior Fisheries Biologist, Bayfield Phone: (715) 779-3346

Lake trout rehabilitation consists of controlling harvest and sea lamprey mortality, as well as stocking historically unused spawning reefs. The controls on harvest have been to put restraints on commercial and sport fishing – and lake trout have responded favorably. Sea lamprey mortality continues to loom as a major obstacle to rehabilitation. Continued efforts to control this parasite will be necessary.

In an effort to improve natural reproduction, over 14 million lake trout eggs have been placed in "astro-turf bundles" on Devils Island Shoal as an alternative stocking strategy. Preliminary results of this strategy look promising.

Creel Survey and Index Sampling

(Expenditure: $39,639.00 in FY93, $36,275.00 in FY94)

Contact: Stephen Schram, Lake Superior Fisheries Biologist, Bayfield

Annual creel surveys were conducted to monitor the catch of salmonids. Results provided information on the success of stocking programs and the status of self-sustaining species. Index stations in Lake Superior and tributary streams were monitored to assess the health of salmonid populations. Information collected from creel surveys and index sampling has resulted in new regulations designed to better manage salmonid populations in Lake Superior. A recent example is the steelhead size limit in Lake Superior and streams – a conservative regulation which will allow the fish to make a comeback on their own.

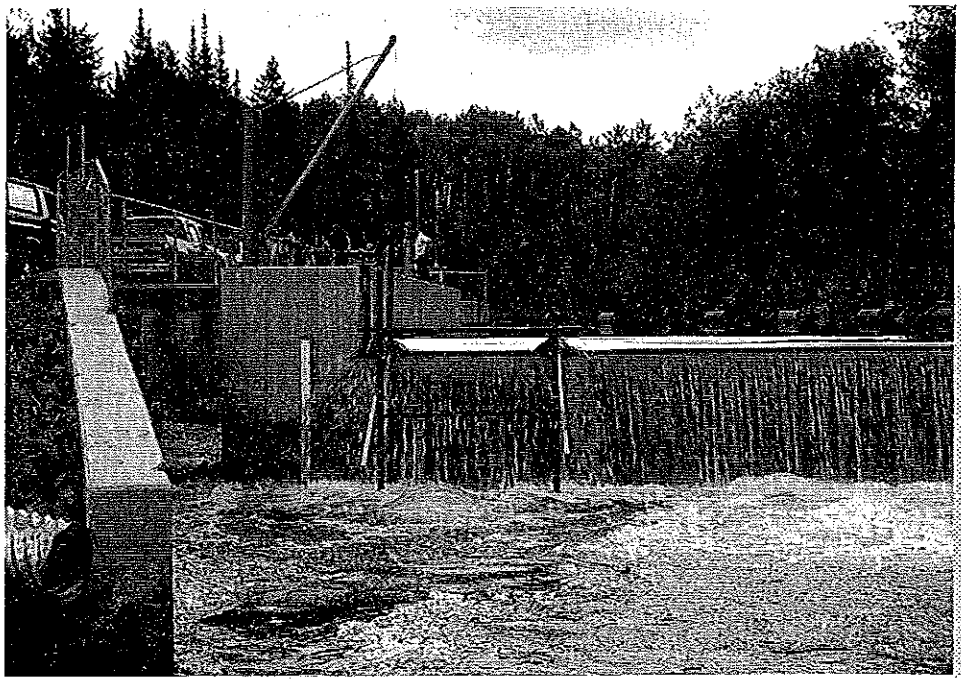
Increasing salmon & trout fishing opportunities relies on several surveys and assessments which provide insights into managing for healthy fish populations and improved fishing.

Develop a Management Plan for the Bois Brule River

(Expenditures: $327.00 in FY93, $14,649.00 in FY94)

Contact: Stephen Schram, Lake Superior Fisheries Biologist, Bayfield

The steelhead fishery on the Bois Brule River collapsed due to overharvest. A comprehensive investigation studying the dynamics of the population identified problem areas. Restrictive regulations in combination with stocking of wild Bois Brule River strain steelhead make up the management prescription presently working to rehabilitate spawning runs and ultimately rebuild a self-sustaining population.



The Bois Brule River sea lamprey barrier, a highly successful control tool, is also a prime site for gathering valuable fisheries management information used to improve stocking and ultimately fishing opportunities.

Operate The Brule River Lamprey Barrier

(Expenditure: $12,743.00 in FY94)

Contact: Stephen Schram, Lake Superior Fisheries Biologist, Bayfield

The Bois Brule River sea lamprey barrier has played a vital role in the sea lamprey control program. Over 18,000 lamprey have been trapped since operations began in 1986. All salmon and trout migrating upstream past the barrier were counted, allowing accurate assessment of spawning runs. The fisheries management information gained helps improve stocking strategies and ultimately fishing opportunities.

The Research Vessel - The Redfin

(Expenditures: $10,000.00 in FY94)

Contact: Chuck Johnson, Northwest District Fisheries Manager, Spooner
Phone: (715) 635-4152

In a joint effort with the Department's Water Resources program, Fisheries Management purchased a research vessel, the REDFIN. The 24 foot vessel replaces the R/V Loon which was over 20 years old and unsafe in the unpredictable weather characteristic of Lake Superior. Although purchased for $43,726.00, the Salmon Stamp fund actually contributed $10,000.00 which was for the vessel's twin 100 HP engines. The vessel is being used for numerous tasks on Lake Superior, including Lake Trout stocking, and research aimed at increasing fishing opportunities.

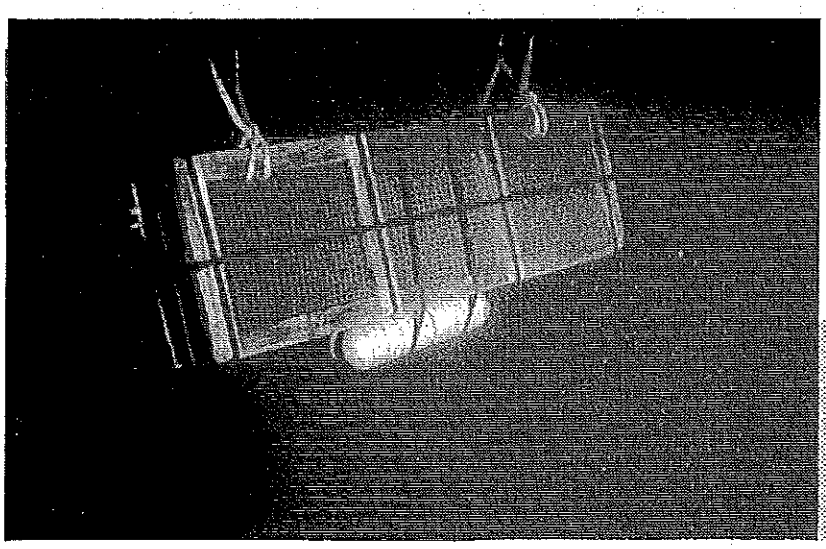
Developments — Facilities

There were no developments funded by Salmon Stamps in the Northwest District in FY93 or FY94.

Salaries — Permanent Employees

(Expenditure: $31,560.00 in FY93 and $37,087.00 in FY94)

Permanent employee salaries in the Lake Superior Work Unit were for a Fisheries Technician whose primary responsibility was creel census and monitoring commercial fishing.



Astro-turf bundles act as a satellite nursery so young lake trout can imprint on Devil's Island Shoal in Lake Superior and someday return to propagate their own offspring.

LAKE MICHIGAN DISTRICT

Operations — Field Activities

Assess Brown Trout Harvest,Abundance,and Movement

(Expenditures: $7,334.00 in FY93 and $7,684.00 in FY94.)

Contact: Brian Belonger, Fish Manager, Marinette Phone: (715) 732-5512

Three strains of brown trout were experimentally stocked to improve the number of brown trout caught by anglers and to test a new strain for producing trophy size fish. The three strains were:

1) Domestic Wild Rose - strain present in our Wisconsin hatcheries and used for regular stocking of Lake Michigan.

2) Feral Wild Rose - strain from hatching fertilized eggs of Wild Rose strain brown trout that have lived in Lake Michigan and returned to tributary streams to spawn.

3) Seeforellen - strain obtained from New York DNR, which matures a year or two older than the Wild Rose strain and, therefore, has the potential to grow larger.

Yearling brown trout (approximately 578,000) from these strains were marked with fin clips and released in two areas of Green Bay and three areas of Lake Michigan from 1991 through 1993. The release locations in Green Bay were: Menominee River and various bay shore locations along Door County; in Lake Michigan: Kewaunee River, Root River, and various lake shore locations along Door County.

Early results indicate that any of the strains can provide good fishing as two-year-olds. Annual survival of specific strains has varied. The trophy potential of Seeforellen looks very promising. They live longer and most three- and four-year-olds caught by anglers are this strain. Also, at these older ages they are larger than the other strains. The average weight of four-year-old brown trout in the Marinette/Menominee Brown Trout Derby in 1994 was 16.6 pounds for Seeforellen, 13.5 pounds for Feral, and 13.2 pounds for Wild Rose. The largest brown trout in the 1993 Derby was a 23.3 pound 3 year old Seeforellen.

The project will be completed when brown trout from the 1991 through 1993 stockings are past their life expectancy.

Assess Salmon at Release and Harvest Facilities

(Expenditures: $17,539.00 in FY93 and $16,251.00 in FY94)

Contacts: Paul Peeters, Fish Manager, Sturgeon Bay Phone (414) 746-2865 and
Steve Hogler, Fish Manager, Manitowoc Phone:(414) 683-4923

Each year, chinook and coho salmon, and steelhead are stocked at the C.D. "Buzz" Besadny Anadromous Fisheries Facility, and chinook salmon are stocked at the Strawberry Creek Weir. When they return as adults attempting to spawn, fertilized eggs are collected for the hatcheries to raise for stocking throughout Lake Michigan. This project is an assessment of biological characteristics of the different strains such as length, weight, age, sex, and percent which survive to adults. Stocked fingerlings, yearlings, and mature returning adults are monitored each year. Various lots of chinook and coho are marked with fin clips or coded wire tags to evaluate the performance of different strains and the presence of disease. All steelhead are fin clipped to identify the strain. Data is collected annually. Long term trends indicate whether the desired characteristics of size, health, time of spawning run, or percent survival are achieved to maintain stable fishing.

Assess Chinook Population in Lake Michigan

(Expenditures: $742.00 in FY94, to be continued in FY95.)

Contacts: Paul Peeters, Fish Manager, Sturgeon Bay and
Mike Toneys, North Lake Michigan Supervisor, Sturgeon Bay Phone: (414) 746-2864

Typically, chinook salmon stocked as fingerlings in Lake Michigan live for four summers before returning to spawn. Creel surveys are used to estimate the number of chinook caught by anglers, and weir assessments are used to estimate the percent returning to spawn. This project will estimate survival of different ages present in the lake.

This information is important due to the recent outbreak of bacterial kidney disease (BKD). Survey data will suggest at what age disease mortalities occur. The assessment would also indicate if treatment for the disease improves survival. The study was conducted using graded mesh gill nets fished from the Department research vessel Barney Devine. Chinook salmon are difficult to survey in the open lake, but new assessment techniques are being developed. The goal is to combine the knowledge of all the fisheries agencies on Lake Michigan to estimate lakewide survival to better understand the disease problems.

Food Habits of Salmonids

(Expenditures: $8,336.00 in FY93 and $8,908.00 in FY94.)

Contact: Paul Peeters, Fish Manager,Sturgeon Bay

The identification of trout and salmon food habits is important to our understanding of Lake Michigan fish populations. This study utilized stomach samples collected from sport angler caught fish and samples collected during various Department surveys to describe the diet of the major salmonids. The food habits for each of the different salmonid species will be analyzed by size of the predator, season of capture, and area of Lake Michigan. The project began in 1990 examining the diet of chinook salmon and expanded in 1991 to include coho salmon, steelhead, lake trout, and brown trout.

The present study will continue through 1994. The project will contribute to the lakewide understanding of the balance between prey fish populations and the level of predator trout and salmon the lake can support for a healthy fishery.

Evaluate Lake Trout Stocking

(Expenditures: $15,614.00 in FY93 and $13,867.00 in FY94.)

Contact: Mike Toneys, North Lake Michigan Supervisor at Sturgeon Bay

This project contributes to the lakewide evaluation of lake trout stocked by the U.S. Fish and Wildlife Service. Netting surveys were conducted from Door County to Milwaukee using the Department research vessel Barney Devine and commercial boats to determine if long term stocking of lake trout has resulted in detectable natural reproduction. The surveys provided information on abundance of adult and juvenile fish, relative survival of different strains, movement of tagged fish, diet, contaminants, health, and lamprey wounding. Samples of fish were also provided to researchers nationwide for special studies. Assistance was provided for the U.S. Fish and Wildlife Service experiment to incubate lake trout eggs in astro-turf bundles on a potential spawning reef east of Door County.

Acquire and Rear Fertilized Eggs from Naturally Spawning Salmon and Trout

(Expenditures: $65,343.00 in FY93 and $62,013.00 in FY94.)

Contact: Mark Opgenorth, Operations Coordinator, Lake Michigan District, Green Bay
Phone: (414) 492-5833

This project assures the collection of adequate, quality, fertilized eggs from natural spawning trout and salmon for Wisconsin hatcheries to rear and stock back into Lake Michigan. Project funding maintains the operation of the C.D. "Buzz" Besadny Anadromous Fisheries Facility, the Strawberry Creek weir and rearing ponds in Kewaunee and Manitowoc. The weir facilities trap adult trout and salmon for collection and fertilization of eggs. The Besadny facility operates in spring and late summer for steelhead and throughout the fall for other trout and salmon. The Strawberry Creek weir operates in fall for chinook salmon collection. Strawberry Creek and the Kewaunee and Manitowoc ponds also rear fingerling and yearlings to imprint them to the tributary streams before stocking. This project provides the vital links between maintaining wild broodstock in Lake Michigan and collecting enough fertilized eggs to hatch, rear, and restock Lake Michigan.

Conduct Creel Census of Anadromous Species

(Expenditures: $51,776.00 in FY93 and $47,533.00 in FY94.)

Contact: Paul Peeters, Fish Manager, Sturgeon Bay

Creel surveys are conducted annually in Marinette, Door, Kewaunee, and Manitowoc counties to determine the extent of participation (fishing pressure), and success (harvest) associated with the Lake Michigan and Green Bay salmonid fishery. Creel clerks, operating by a stratified random schedule, count anglers and car/boats to determine pressure, and interview anglers, measuring and weighing fish caught to determine harvest. Creel clerks gather additional important information relating to the management of salmonid populations (fin clips, stomach samples, coded wire tag recovery, Floy tag recovery, etc). Information collected under this project is combined with a similar project conducted in the Southeast District to estimate the total fishing pressure and harvest. This project tracks trends in percent of stocked fish harvested, size, strain performance and regional differences in the fishery. It currently provides the best measure of the stocking success of the trout and salmon program.

Cold Water Production/Distribution

(Expenditure: $15,877.00 in FY94.)

Contacts: Steve Fajfer, Supervisor, Wild Rose Hatchery Phone: (414) 622-3527 and
Mike Schrage, Fisheries Supervisor , Winnebago Phone: (414) 424-1263

This project provides funds for hatching and rearing of trout and salmon at the Wild Rose Hatchery and for transport of fish from the hatcheries to stock in Lake Michigan.

In addition to routine hatchery operations, an oxygen injection system was used at critical times to reduce nitrogen gas saturation and prevent mortality problems. Also, chinook salmon were fed medicated feed prior to stocking to improve their health and control bacterial kidney disease. The project assures adequate numbers of trout and salmon for stocking Lake Michigan.

Developments — Facilities

Spawn Collection Facility - Lake Michigan

(Expenditure: $45,183.00 in FY93.)

Contact: George Boronow, Supervisor Lake Michigan Work Unit, Green Bay
Phone: (414) 448-5126

The first phase in the development of the C.D. "Buzz" Besadny Anadromous Fisheries Facility was primarily the construction of the basic barrier structure and fish ladder. This allows for the collection of fish attempting to spawn. If phase 1 targeted "collection", phase 2 could be characterized as "processing and public participation". The expenditures listed here are supporting the planning and design of phase 2. The project involves the construction of a new building which is needed to facilitate the practical aspects of an efficient and clean facility for the sensitive process of collecting, fertilizing and preparing eggs for transport to the hatchery. A clean facility is also very important in conducting disease treatment and the collection of scientific samples.

A walk-through observation area will provide better viewing of the entire process – a very popular feature with student groups as well as the general public. Integral to the observation area will be a display explaining the activities at the facility and the benefits to trout and salmon fishing on Lake Michigan. The viewing area will be integrated with the existing observation deck and park-like walkways. Public restrooms are also included.

Develop Adult Salmonid Habitat

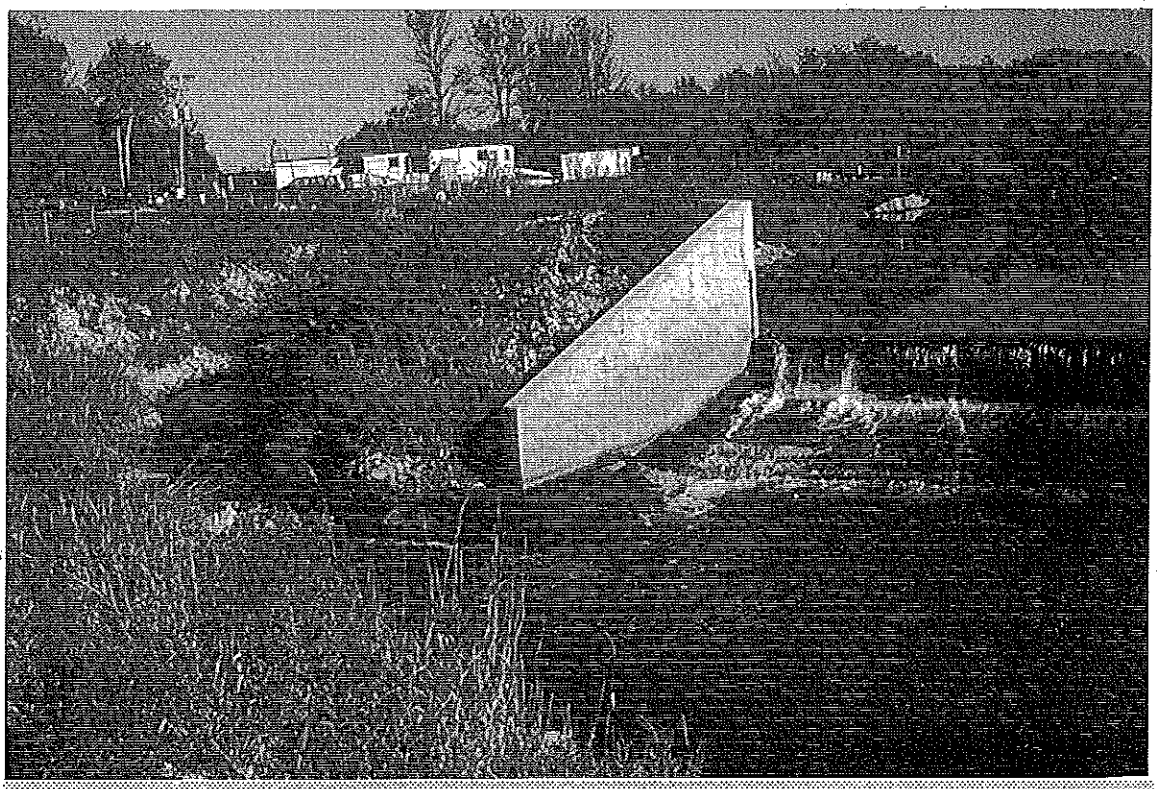
(Expenditure: $250.00 in FY94.)

Contact: Steve Hogler, Fish Manager, Manitowoc

The first riffle section of the stream channel of the Kewaunee River up stream from the Lake Michigan lake level is wide and the bottom is covered with small to medium sized rock. During periods of low water, much of this rocky rubble is exposed, making it difficult for anadromous trout and salmon to find the channel to migrate upstream.

The first goal of this project is to deepen and better define the main channel of the river in the project area. This will allow anadromous fish easier access to the C.D. "Buzz" Besadny Anadromous Fisheries Facility, ensuring healthy fish for propagation and ultimately restocking of their progeny into Lake Michigan. The second goal is to place large boulders along the deepened channel to act as resting locations for migrating adult fish. These "rest stops" will improve the fitness of the fish and provide many more good fishing holes for the angler along this stretch of public land.

Accomplishments for the fiscal year 1994, include examination of the project area, development of the project plan, and obtaining all necessary federal, state, and local zoning permits. The majority of the work will be done during summer low flow periods, when fish numbers are low in the affected area. The project should be completed by fall 1996.



The C.D. "Buzz" Besadney Anadromous Fish Facility dam diverts the upstream spawning journey of Lake Michigan trout and salmon into the channel at the left leading them to Department fisheries workers waiting to gather eggs to supply hatcheries.

Groundwater Survey

(Expenditure: $7,000.00 in FY94.)

Contact: Steve Fajfer, Supervisor , Wild Rose Hatchery

In cooperation with the U. S. Geological Survey, this project, when completed, will identify the capabilities of the Wild Rose hatchery's ground water usage and recharge. As plans continue for complete hatchery renovation, this information becomes invaluable to correctly calculate production capacity for the future. This information should be available in late 1995.

Wild Rose Hatchery Storage Facility

(Expenditure: $6,851.00 in FY94.)

Contact: Steve Fajfer, Supervisor , Wild Rose Hatchery

This project involved replacing an old building at the Wild Rose Hatchery. The Department of Transportation donated the building as part of wetland mitigation from a highway project. The new building was moved from the construction site to the hatchery and reconstructed. The new facility provides rodent proof feed storage, equipment storage and room for hatchery operations.

Salaries ——— Permanent Employees

Permanent employee salaries in the Lake Michigan Work Unit supported a half time person to work on Lake Trout assessments. In addition to assessments, a part of this work was to plant eggs on astro-turf over potential spawning grounds. ($11,784.00 in FY93 and $12,100.00 in FY94)

SOUTHEAST DISTRICT

Operations — Field Activities

Evaluate Lake Michigan Steelhead, Chinook, and Coho Salmon Populations at the Root River Weir

(Expenditures: $35,656.00 in FY93 and $9,328.00 in FY94)

Contact: Mike Keniry, Lake Michigan Supervisor, Great Lakes Research Facility, Milwaukee
Phone: (414) 382-7921

This project was designed to take advantage of the Root River Steelhead Facility as a management tool to evaluate the rates of return, harvest and growth of coho and chinook salmon and three strains of steelhead (Skamania, Ganaraska and Chambers Creek) to the Root River. It was also designed to use the Root River Steelhead Facility as an index station at which to evaluate long term changes in abundance, exploitation rates and rates of return for these fish.

Expenses incurred under this project have been for fin clipping fish prior to stocking in the Root River and capturing and marking adult steelhead returning to the river. Beginning in the fall of 1994 the Root River Steelhead Facility will be used as the primary tool to collect data from these species returning to the river.

Fish Health experts take advantage of the Root River Steelhead Facility to collect information in the fight against fish disease, like Bacterial Kidney Disease (BKD).

Food Habits of Salmonids

(Expenditure: $6,711.00 in FY94)

Contact: Brad Eggold, Fisheries Biologist, Plymouth Phone (414) 892-8756

Since changes in diet may be related to abundance of forage fish, the identification of trout and salmon food habits is important to our understanding of Lake Michigan fish populations.

This project involves determining the diet of all salmonid species, considering season, location, and size of fish. Stomach contents from chinook and coho salmon, steelhead, brown and lake trout caught by sport anglers, in assessment nets and incidentally in commercial nets were examined for food contents and general health. Data were collected and analyzed by both LMD and SED staff.

The present study will continue through 1994. The project will contribute to the lakewide understanding of the balance between prey fish populations and the level of predators (trout and salmon) the lake can support for a healthy fishery.

Operate the Root River Weir

(Expenditure: $172.00 in FY94, to be continued in FY95)

Contact: Randy Link, Hatchery Superintendent, Kettle Moraine Springs Hatchery
Phone: (414) 528-8825

These expenditures are by hatchery staff for planning and setting up the initial operation of the Root River Steelhead Facility. This facility became operational in July of 1994 with the primary purpose of collecting brood stock and gametes for the propagation of trout and salmon for the Lake Michigan stocking program.

The Salmon Stamp fund supported start up activities for a short while until a TS11 fund was set up. This fund was established to dispense the money J.I. Case company was penalized for environmental damages. This project will continue into fiscal 1995 using this fund.

Offstation Rearing and Broodstock Collection

(Expenditures: $8,101.00 in FY93, $3,874.00 in FY94)

Contact: Randy Link, Hatchery Superintendent, Kettle Moraine Springs Hatchery

This project covers expenditures for spawning, broodstock capture, and rearing of salmonids at areas away from the hatchery. Typically this project has covered expenses incurred by hatchery staff during capture and spawning of broodstock at the Besadny Facility in Kewaunee, and in rearing and imprinting of fish at the Kenosha Cooperative Rearing Pond.

Steelhead Broodstock Holding and Rearing Ponds Develop Groundwater Improvements

(Expenditure: $4,993.00 in FY93)

Contact: Randy Link, Hatchery Superintendent, Kettle Moraine Springs Hatchery

This was a joint project with the U.S. Geological Survey to assess ground water potential for the Kettle Moraine Springs Fish Hatchery.

There are two different phases to this project. The project was initiated by a need to improve the ponds used to hold 300-400 Skamania steelhead broodstock captured each summer, and held in the hatchery until they are ready to spawn. These ponds were also used to rear steelhead smolts in the spring. The old open earthen ponds being used were subject to sedimentation (needing dredging), had the potential for disease, and here the fish were vulnerable to predators.

The three earthen ponds were removed, and three 4' deep x 15' diameter, galvanized steel, covered, circular tanks were installed. A raceway to hold the steelhead broodstock captured from L. Michigan was also installed.

When renovating the ponds, it was suggested the water supply problems be investigated. Wastewater improvements were needed to provide a clean place, a more manageable water supply, and better wastewater handling.

To minimize the effect a new well would have on the other existing wells, site selection was important. Some of the tasks involved were beyond the resources available internally, so the U.S.Geological Survey was contracted for the groundwater phase.

The U.S.G.S. drilled test wells, did seismographic studies and pump testing to assess the potential to locate and pump more groundwater from the aquifer. While drilling test wells, a high capacity, 6" artesian well was discovered. With a pump assist, this well generates 280 gallons/minute.

Analyze Lake Michigan Sport Fish Survey

(Expenditure: $15,154.00 in FY94)

Contact: Brad Eggold, Fisheries Biologist, Plymouth

All survey data from moored boats, charters and Southeast District creel surveys are entered into data bases at the Plymouth Field station. The data are checked for errors and loaded onto a mainframe computer at the central DNR office in Madison. Here, statistical programs generate the angling effort and harvest information that are used to calculate other information including the correct stocking levels for salmonids in Lake Michigan.

In the past two years, the data have been used to: 1) evaluate different coho harvest level strategies; 2) evaluate the effectiveness of stocking accelerated growth coho salmon; 3) assess the effectiveness of lunker structures in Oak Creek; 4) streamline the creel survey so creel clerk effort is directed at sites and times anglers are present; and 5) provide individuals and organizations with data not normally generated by existing programs.

Assess PCB in Sheboygan River Steelhead and Coho

(Expenditures: $5,877.00 in FY93, $15,142.00 in FY94)

Contact: Mike Keniry, Lake Michigan Supervisor,- Great Lakes Research Facility, Milwaukee

This project will evaluate both the effects of the presence of PCBs in the Sheboygan River system, and PCB levels in steelhead and coho salmon stocked there. Favorable results are needed to support future routine stocking of these fish in that river. This will be done by comparing concentrations of PCBs in fish stocked in the Sheboygan with those stocked in the Root and Pigeon Rivers. Beginning in 1994 chinook salmon were stocked in the Sheboygan River under this project.

These expenditures are for marking the fish which were stocked in the Sheboygan and Pigeon Rivers in 1993 and 1994, and for collecting smolts, adults and sub-adult steelhead and coho for contaminant analysis. Currently, data for a hatchery-to-death time series for one cohort of coho salmon has been collected with a second complete series expected in the fall of 1994.

One management decision already made based on this data is that Fall fingerling stocking of these species has been discontinued in favor of yearling stocking in the Sheboygan river, due to the rapid uptake of PCBs by the smolts over-wintering in the river.

Renovate Ponds at Kettle Moraine Springs Hatchery

(Expenditure: $2,075.00 in FY94)

Contact: Randy Link, Hatchery Superintendent, Kettle Moraine Springs Hatchery

This project was undertaken to improve facilities at the Kettle Moraine Springs Fish Hatchery. The project included renovating three earthen ponds used to hold wild brood stock captured from Lake Michigan tributaries and held until they are ready to spawn. Three round tanks were installed, improvements to water collection and distribution systems were made, and waste water handling improvements were made to meet discharge requirements. Results are much improved health of captured brood fish, better water management, and cleaner discharge water to the receiving stream.

Cold Water Production at Kettle Moraine Springs Hatchery

(Expenditures: $128,277.00 in FY93 and $146,603.00 in FY94)

Contact: Randy Link, Hatchery Superintendent, Kettle Moraine Springs Hatchery

The majority of this funding covers all hatchery operation expenses which are directly related to fish propagation, such as: electricity costs, fish food, vehicle operation and maintenance, building operation and maintenance, supplies and equipment. Annually these expenses cover the production of approximately 600,000 steelhead and the incubation and hatching of coho eggs to be reared at our other hatcheries.

Some of these moneys also help support other administrative and facility maintenance expenses at the hatchery not directly related to fish propagation, for example: residence expenses, staff training, office supplies and expenses, and grounds maintenance.

Evaluate Lake Trout Stocking

(Expenditures: $23,788.00 in FY93 and $13,079.00 in FY94)

Contact: Mike Keniry, Lake Michigan Supervisor, Great Lakes Research Facility, Milwaukee

Expenses under this project are used to cover costs associated with the summer and fall lake trout assessments. This project was designed to evaluate the long term trends in the lake trout population including distribution, abundance, growth and mortality rates. Data collected under this project were used in the decision to extend the sport fishing season for lake trout in the spring and fall beginning in 1995.

Conduct Lake Michigan Creel Census

(Expenditures: $44,128.00 in FY93, $50,035.00 in FY94)

Contact: Brad Eggold,Fisheries Biologist,Plymouth

Creel surveys for trout and salmon were conducted annually from March through October in Sheboygan, Ozaukee, Milwaukee, Racine and Kenosha counties to determine fishing pressure, harvest and harvest rates of stocked salmon and trout. Anglers were interviewed at ramps, piers, streams and on shore by creel clerks following a random stratified schedule.

In all, Creel clerks collected over 5,000 interviews each year plus information on the size of harvested fish. Additional information collected included fin clips and coded-wire-tagged heads from harvested fish, stomach contents for diet studies, Floy tags, and scales for aging fish.

The data collected from this survey provide a wide variety of information including the ability to track trends in the percentage of stocked fish harvested, size, strain, performance, and regional differences in the fishery. This creel survey is the best method to determine the success of the trout and salmon stocking program.

Basic Program Services - Lake Michigan Work Unit

(Expenditure: $6,255.00 in FY94)

Contact: Mike Keniry,Lake Michigan Supervisor,Great Lakes Research Facility,Milwaukee

Expenses under this project cover general administrative, travel, staff training costs, as well as some equipment purchases for the SED Lake Michigan Work Unit trout and salmon work which can not be attributed to a single project.

Developments — Facilities

Replace Liquid Propane Boiler

(Expenditure: $16,195.00 in FY94)

Contact: Randy Link, Hatchery Superintendent, Kettle Moraine Springs Hatchery

This project covered the replacement of a worn out boiler in hatchery building #3 at Kettle Moraine Springs Fish Hatchery, with a new state of the art high-efficiency triple boiler system.
The heated water is used to accelerate the growth of salmonids, especially Ganaraska steelhead, in order to get them large enough to stock in one year. Without the system it would take two years to grow Ganaraska to stocking size, drastically reducing the hatchery's capacity to raise steelhead and increasing the cost.

Salaries — Permanent Employees

Permanent employee salaries in the Lake Michigan Work Unit and Kettle Moraine Springs Hatchery were for two Fisheries Management Technicians to schedule field work for salmon stamp surveys, data collection, and data base work up. The Kettle Moraine Springs Hatchery employed a Hatchery Technician to perform a variety of hatchery duties. ($33,990.00 in FY93 and $37,176.00 in FY94)

SOUTHERN DISTRICT

Operations — Field Activities

Cold Water Production - Lake Mills Hatchery

(Expenditures: $51,134.00 in FY93 and $58,425.00 in FY94)

Contact: Al Kaas, Hatchery Superintendent, Lake Mills Hatchery Phone: (414) 648-8012

These expenses support our cold water rearing budget for rearing Coho salmon. Expenditures include such things as: feed, electrical overhead (well pumping, freezer operation, facility electrical needs), vehicle mileage related to salmon rearing, and facility and equipment maintenance relating to salmon production.

The Lake Mills State Fish Hatchery is responsible for hatching and early rearing for most of the coho salmon produced in Wisconsin. This past year we have been experimenting with reduced incubation and rearing temperatures. This experiment was conducted to try to more closely duplicate conditions that exist in nature. Early indications are that coho can be successfully reared at these lower temperatures. With the cooler temperature, a nearly full feed ration can be fed. With slower growth rates, yet full nutrition, the coho being stocked appear to be healthier as compared to those fish raised on a constant temperature water supply and restricted feed rates to control size at stocking. Use of our warm water production lake water line provides us with cooler water temperatures during the winter months. Operationally, this has reduced our reliance on pumped well water during the winter months and gives us an opportunity to perform annual maintenance on the wells to control iron bacteria.

Being Frugal Stretches Salmon Stamp Dollars

Working with Jim Thompson (Lake Michigan work unit - Milwaukee) and Mark Holey (US Fish and Wildlife Service), we were able to borrow seven Heath incubators to incubate the extra coho eggs needed because of the early mortality syndrome. If we had to purchase them, these incubators would have cost $616.00 each, for a total of $4,312.00! Also the hatchery crew constructed four additional "batch" incubators, spending approximately $150.00. These incubators are worth $250.00 each if they were to be purchased. The result is a savings of approximately $850.00!

Developments — Facilities

There were no developments funded by Salmon Stamps in the Southern District in FY93 or FY94.

Salaries — Permanent Employees

No permanent salaries were drawn from Great Lakes Salmon and Trout Stamp funds in the Southern District in FY93 or FY94.

Fisheries personnel pitch in to mine Lake Michigan gold (salmon eggs, that is) from spawning trout and salmon at the newly operational Root River Steelhead Facility in Racine.

NORTH CENTRAL DISTRICT

Operations ——— Field Activities

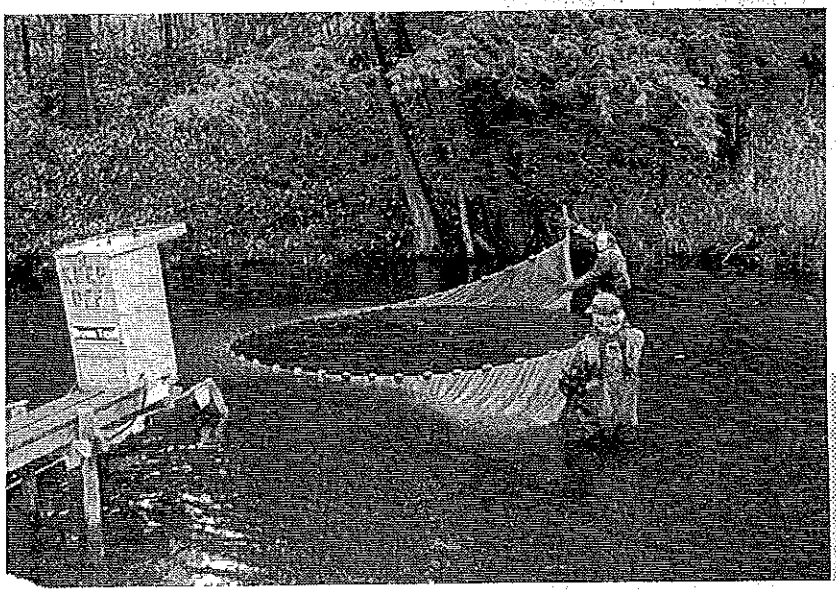
Coldwater Production - Thunder River Trout Rearing Station

(Expenditure: See permanent hatchery personnel salaries listed below.)

Contact: Gary Holzbauer, Thunder River Hatchery Phone:(715) 757-3541

Every year since 1980 Thunder River has raised an average of 218,000 (30,000-35,000 lbs.) mostly Brown Trout for Lake Michigan and Green Bay. Normally, most operational funding comes from fishing license fees. However, in fiscal year 1994 $6999.00 came from the Salmon and Trout Stamp Fund to finance part of the permanent salary expenditures. This was due to the fact that normally the hatchery operates only seasonally from May through November with one full time employee, one six month seasonal, and one LTE during this time. However, during the winter of 1993-94 experimental steelhead for Lake Michigan were reared in the hatchery. In order to accommodate this new program the seasonal position employee was held over for 11 months. The Salmon Stamp Fund helped cover some of this extra expense.

We are scheduled to hold Coho Salmon over the winter of 1994-95 for Spring distribution into Lake Michigan. We are again planning on an assist from the Salmon Stamp fund to help carry out this program.



Hatchery workers at the Thunder River Trout Rearing Station collect trout with seine nets to prepare them for release in Lake Michigan.

Development ——— Facilities

There were no developments funded by Salmon Stamps in the North Central District in FY93 or FY94.

Salaries ——— Permanent Employees

Permanent employee salaries at the Thunder River Hatchery supported part of a hatchery person to perform the various chores at the hatchery related to experimental steelhead production. ($6,699.00 in FY94)

CENTRAL OFFICE

Operations ——— Field Activities

Evaluate Salmonid Stocking

(Expenditure: $3,131.00 in FY94)

Contact: Bill Horns, Great Lakes Specialist, Madison Phone: (608) 266-8782

There are two projects associated with this activity:

* **The Lake Superior stocking report.** This report details the numbers of each species stocked at each release location on Lake Superior. This accumulative report is the first with this format. It is intended to be periodically updated.

* **A study of the success of Coho salmon returning to the weir.** This study is designed to compare the return success ratios of yearling to fingerling Coho. Comparing the fall fingerlings to yearlings for return to weir success serves as an indicator of survival and has management implications for improving propagation. The study is targeted at the Kewaunee River and Root River collection sites for two years. Each year 50,000 fingerlings and 50,000 yearlings from the same year class are being fin clipped and released. The expenses in FY94 are for fin clipping the first stage of released Coho.

Administer the Salmon and Trout Stamp Program

(Expenditures: $12,906.00 in FY93 and $9,366.00 in FY94)

Contact: Bill Horns, Great Lakes Specialist, Madison

Administrative costs associated with operating the Great Lakes Salmon and Trout Stamp program include the following:

* **Preparation of the previous Salmon Stamp Expenditure report (Administrative Report Number 36)**
The costs of limited term employees to research, gather data, write, and assemble the last Salmon Stamp Expenditure report.

* **Great Lakes Salmon and Trout Stamp judging and printing.**

Developments ——— Facilities

There were no facility developments carried out by the Central Office which were funded by Salmon Stamp revenue in FY93 or FY94.

Salaries ——— Permanent Employees

No permanent employee salaries in the Central Office were drawn from Great Lakes Salmon and Trout Stamp revenue.